September 11, 1955

Dear Dr. Leifson:

I spent some time this weekend on some cell pedigrees with your cultures, particularly with H1, H42, H47 and H300. The latter three were, for technical reasons, not the most favorable for pedigree studies: H1 worked very cleanly. A couple of dozen cells were followed for from one to three fissions.

Once the cells were growing rapidly again, about half the fissions gave one +, one - pair (+ = immediately motile; - = initially nonmotile, becoming motile before the next fission). This is not consistent enough to be worth following up in great detail, and there does not seem to be a definite pattern. So probably, it is only a matter of the relative rates of flagellum formation and cell division. One pedigree was provocative:

But the suggested rule, that + gives +,-; - gives +,+ was not consistently followed in other fissions.*There still may be some such pattern, but it would be too much of a digression for me to go into it just yet. If you should run into other cultures in which bipolar cells, or bipolar cell pairs, are strikingly absent, I would appreciate your bringing them to my attention for possible future trials. Thank you for your courtesy thus far.

Yours sincerely,

Joshua Lederberg
Professor of Genetics

*This might be interpreted as + means "old flagellum"; - means a newly formed one, or, in a sense, that the flagella for two cells are formed every other division.